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Appl. in Canada by Herbert G. Sanquist, Inventor.

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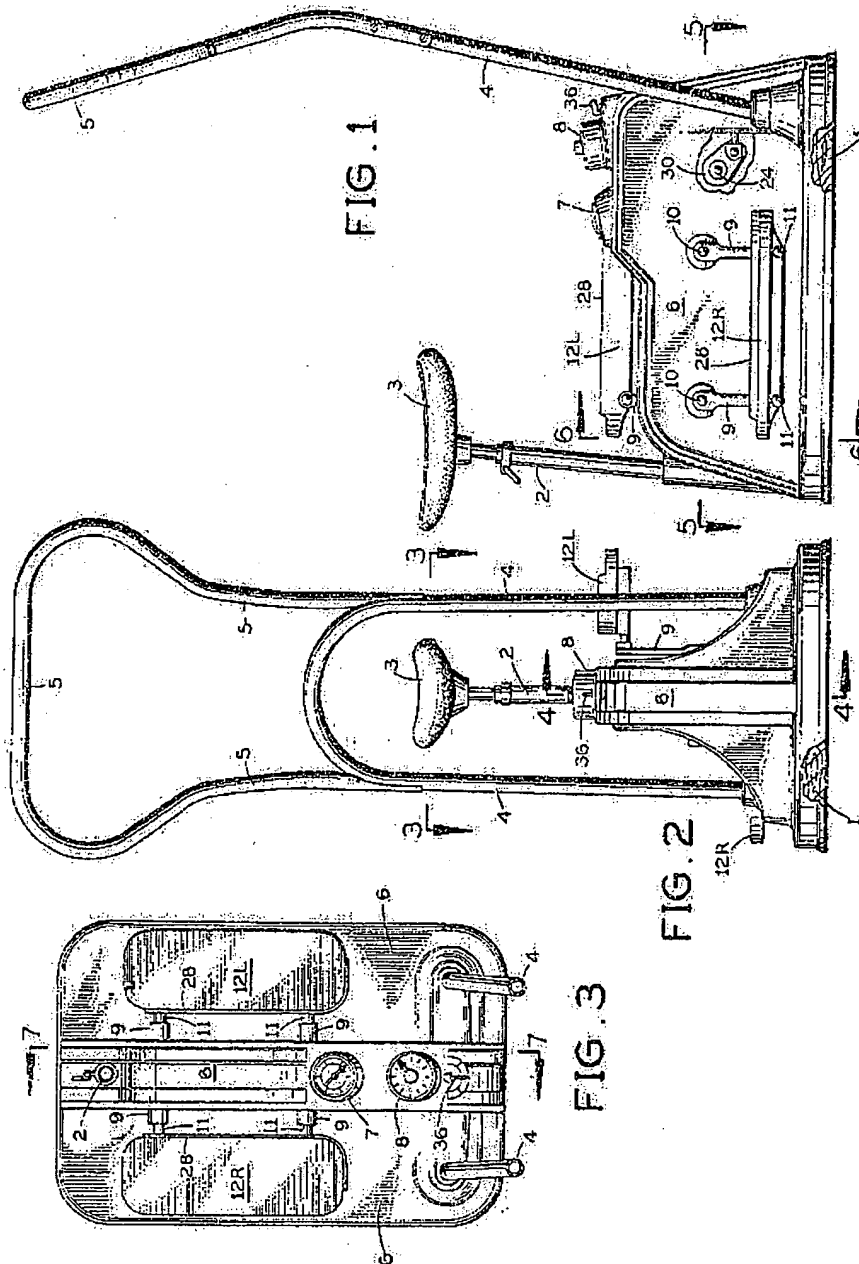


FIG. 3

FIG. 2

FIG. 1

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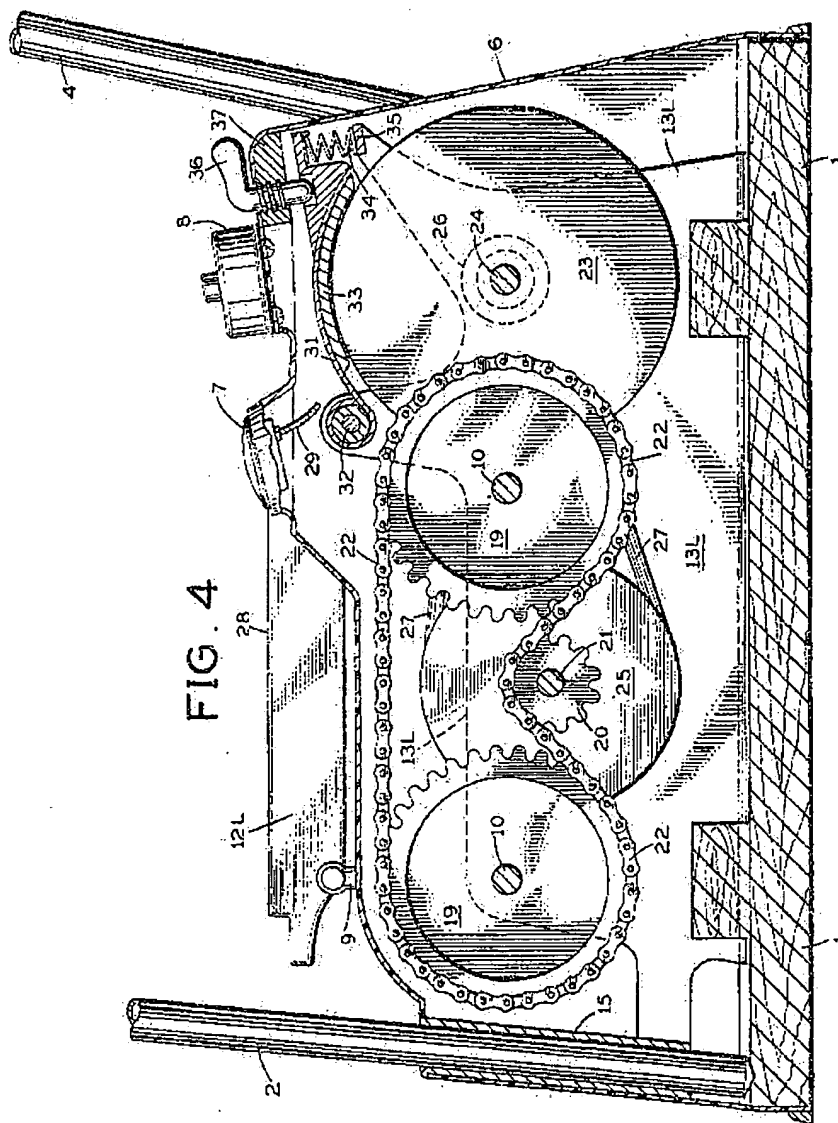
Robert Freyre & Company
PATENT AGENTS

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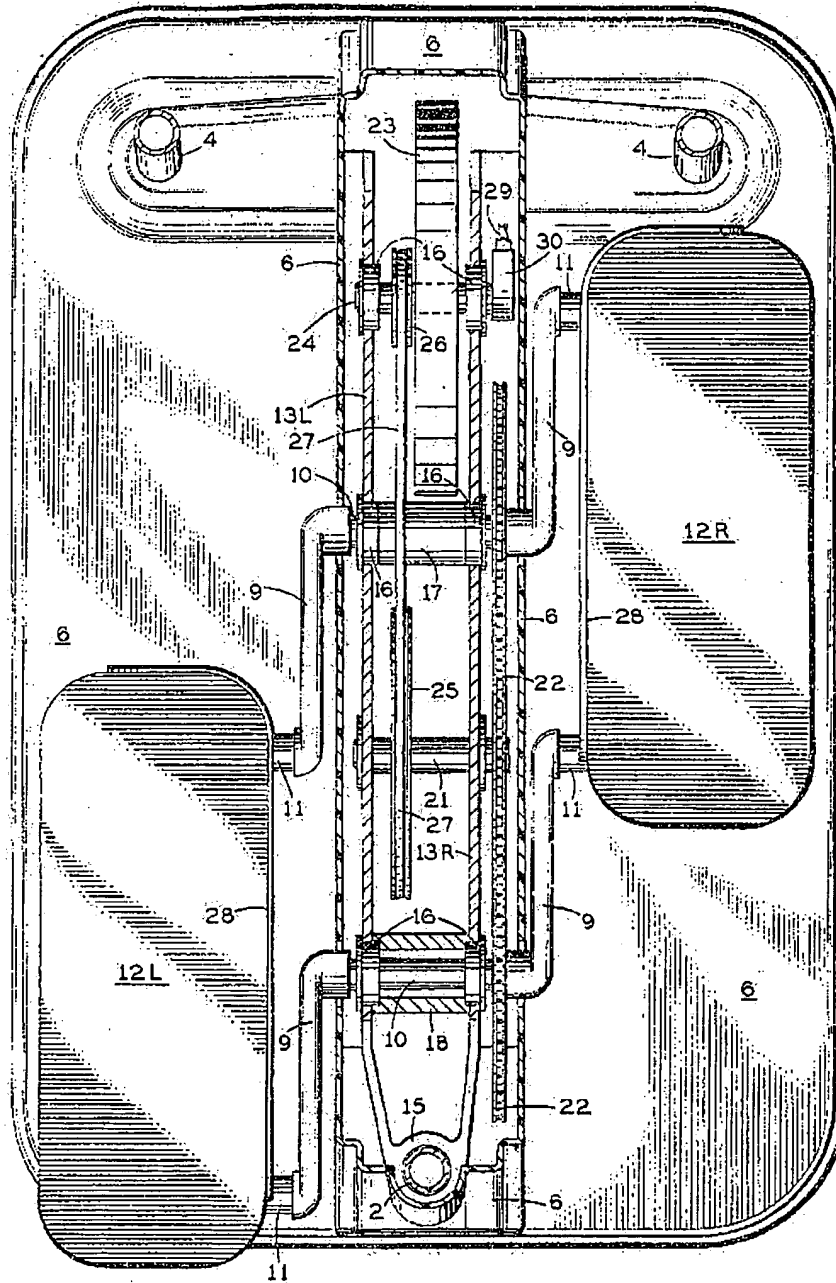


FIG. 5

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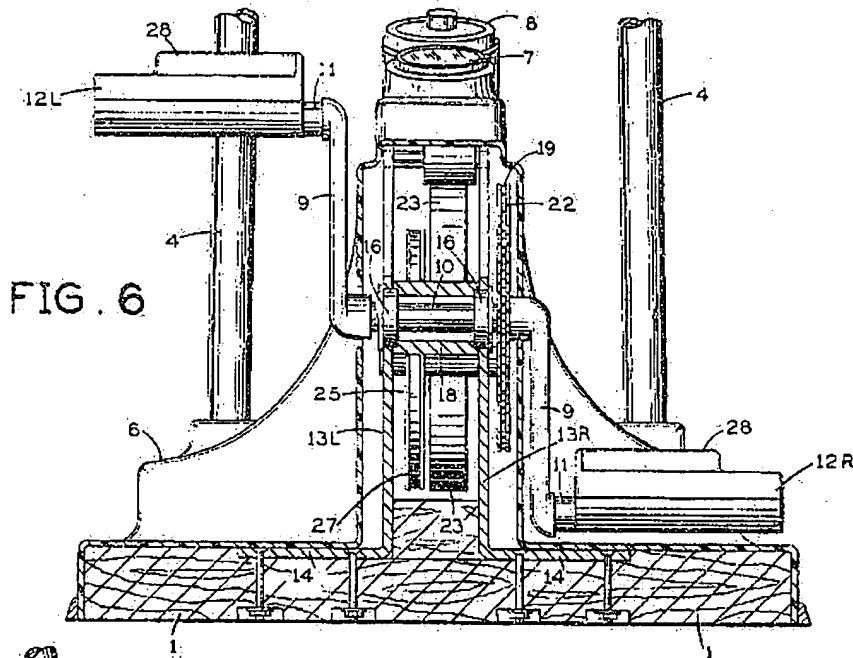


FIG. 6

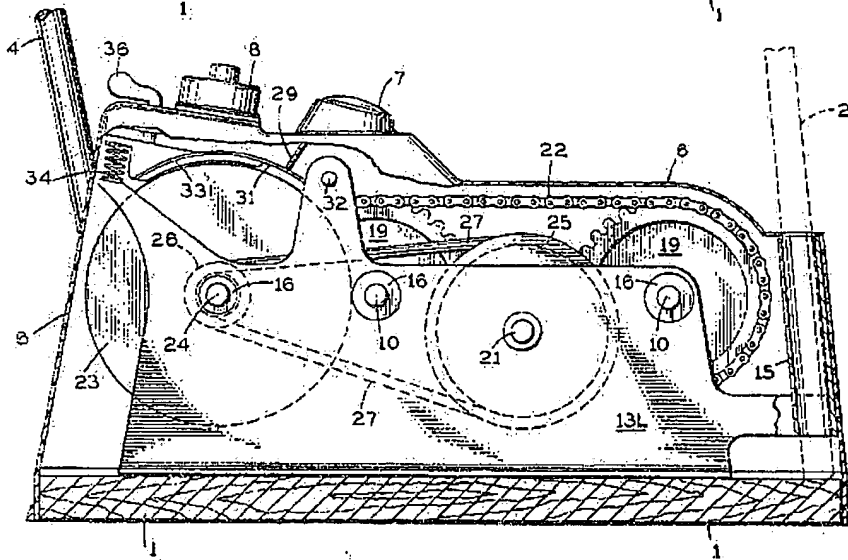


FIG. 7

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"EXERCISE DEVICE FOR PEDAL EXTREMITIES"

ABSTRACT:

An exercise apparatus having right and left platforms pivotally secured to dual crank means and including a transmission connected to said crank means for applying a frictional and inertial load to said platforms which are adapted for cyclic rotation by the feet of a person simulating the exercise termed "jogging".

SPECIFICATION:

10 This invention relates in general to exercise machines and more particularly to a machine for exercising the pedal extremities of a person, simulating the exercise called "jogging".

Prior exercise machines simulating the riding of a bicycle or operating a treadmill do not provide the exercise of a person running at a so-called "jogging" speed.

Furthermore, the bicycle type of exercise can only be properly operated when a person is seated on a saddle and gripping the handle bars thereof, and the treadmill requires rearward force of the feet, which does not provide the upward movement of the leg, considered to be one of the important benefits of "jogging".

20 The present invention overcomes the above objections and disadvantages by the provision of a machine which permits several separate degrees of exercise. First, the person may be seated and cyclically operate the platforms of the machine by the legs and feet and provide added support by gripping a stationary handgrip. The operator may also assume a standing position and operate the platforms with or without gripping the hand grip, and the person may vary the load of operation by predetermined adjustment.

30 A principal object of the invention is the provision of a machine having a stationary base on which right and left platforms may be cyclically rotated by the feet of a person, which rotation is transmitted by crank means to a frictional transmission for



providing a predetermined load.

A further object of the invention is the provision of a pair of platforms for cyclic operation of the feet with provision for a friction load to be overcome thereby including a seat and hand grip means whereby the person may cyclically operate the platforms in a seated position with or without gripping the hand grip.

Another object of the invention is the provision of a machine for simultaneously "jogging" by a person, including a transmission for supplying a predetermined load, and a speedometer for indicating the rate of "jogging", and a brake means included in said transmission for adjustably increasing the friction load thereof and correspondingly increasing the energy required for "jogging".

These and other objects and advantages in one embodiment of the invention are described and shown in the following specification and drawings, in which:

Fig. 1 is a right side elevation of the device in reduced scale;

Fig. 2 is a front elevation of the device shown in Fig. 1;

Fig. 3 is a top plan view of the device taken through section line 3-3, Fig. 2;

Fig. 4 is a fragmentary cross sectional view taken through section line 4-4, Fig. 2;

Fig. 5 is a cross sectional plan view taken through section line 5-5, Fig. 1;

Fig. 6 is a cross sectional rear elevation taken through section line 6-6, Fig. 1;

Fig. 7 is a cross sectional elevation taken through section line 7-7, Fig. 3.

Referring to Figs. 1, 2 and 3, a base 1 serves as a support for the frame and all of the elements of the mechanism, in

which is secured a telescopic adjustable seat post assembly 2, to which is secured a conventional seat 3, such as used on a bicycle. The base also supports an inverted U-shaped tubular member 4, which has the lower ends thereof secured in the base 1 and a U-shaped tubular hand grip member 5, which has the lower ends secured by conventional fasteners to the upper portion of the member 4, as shown. A housing 6 formed of sheet material is secured to the base member 1 and covers mechanism to be hereinafter described.

10 The dial portion of a speedometer assembly 7 projects through the housing 6, as shown in Figs. 1 and 3, and a well known manually operated bell timer 8 is secured to the upper portion of the housing 6 for manual setting for audible operation for selected time intervals.

A pair of crank arms 9-9 are secured to a like pair of crank shafts 10-10, respectively, projecting through the housing 6. Each crank pin 11 of the crank arms 9 is journaled in a foot platform 12R.

20 A like pair of crank arms and pins extends through the housing 6 at the opposite side thereof and in opposite vertical position and are journaled in foot platform 12L. It is now apparent that a person may be seated on seat 3 with both feet resting on the platforms 12R and 12L with the transverse portion of the hand grip member 5 within convenient hand grasp range.

The mechanism to be hereinafter described is supported by a pair of parallel spaced upright frame members 13R and 13L, which are secured centrally to the base 1 by right angle flanges 14-14 by conventional fasteners, as shown in Fig. 6.

30 Referring to Fig. 4, the lower portion of the seat post assembly 2 is secured in a base and a tubular socket 15 welded to the ends of the members 13L and 13R. Each of the crank shafts 10 is journaled in upright members 13L and 13R by ball bearing

assemblies 16-16. A spacer 17 is positioned between the bearing assembly 16 on the forward crank shaft 10. The same bearing in assembly 16 is used to journal the rear crank shaft 10 with an upright reinforcement bushing 18 secured by well known means between the upright members 13L and 13R. A pair of like drive sprockets 19-19 are secured to the right end portion of the crank shafts 10, as shown.

10 A driven sprocket 20 is secured to shaft 21 which is journaled for rotation in members 13L and 13R, better shown in Fig. 5. An endless roller chain 22 is engaged around a portion of the periphery of both sprockets 19 and over a portion of sprocket 20 whereby the rotation of sprocket 19 will rotate sprocket 20 in the same direction at the same speed.

A fly wheel 23 is secured for rotation on a shaft 24, which shaft is journaled on a pair of bearing assemblies 16 retained in members 13L and 13R, better shown in Fig. 5. A V belt drive pulley 25 is also mounted on shaft 21 and a driven V pulley 26 is secured to shaft 24 adjacent fly wheel 23 and an endless V belt 27 is positioned on drive wheel 25 and pulley 26,
20 as shown.

Referring to Figs. 5 and 6, each of the platforms 12L and 12R have a vertical flange 28 around the inner portion of their perimeter to maintain the proper placement of the feet of the operator. Thus it is apparent that when the platforms are simultaneously rotated, the sprockets 19 will rotate sprocket 20 at like speed and drive pulley 25 and belt 27 to rotate driven pulley 26 and fly wheel 23.

Referring to Figs. 4 and 5, the speedometer assembly 7 is driven by a well known flexible drive shaft 29, which in turn is
30 rotated by a well known right angle gear drive means 30 attached to shaft 24, shown in Fig. 5. The ratio of gear means 30 is adjusted to provide speedometer readings equivalent with normal

human "jogging" practice in miles per hour. The timer 8 is provided to be manually operated by the user to predetermine the period of exercise desired.

Referring to Fig. 4, a brake shoe 31 is pivotally secured on a fixed shaft 32 secured through and between members 13R and 13L and the shoe has a lining 33 attached to the inner side thereof conforming with the outer periphery of the fly wheel 23. The lining may be made of fibrous material, such as carbonaceous asbestos fiber. A compression spring 34 is biased between the
 10 ledge 35 and shoe 31 for normally holding the brake lining 33 in spaced relation to the periphery of the fly wheel 23. A screw lever 36 is threaded through a block 37 in the upper end of housing 6 whereby the rotation through less than one revolution will move the shoe 31 in a downward direction and apply a predetermined frictional contact of the lining 33 against the periphery of the fly wheel, as shown, for applying a load to the user in addition to the frictional load created in the aforesaid transmission between the platforms 12 and the fly wheel 23.

It is to be noted that the present invention comprehends
 20 the use of a gear or other type transmissions, not shown, which terminate in a fly wheel for applying friction and inertia similar to the manner previously described.

In operation, the subject person will straddle the housing and place right and left feet on corresponding right and left platforms 12R and 12L. The person may be seated on seat 3 and grasp the hand grip member 5.

Assuming that the brake adjustment lever is placed in "off" position, and the timer 8 is manually set for a predetermined elapsed time period, the person may rotate the platforms
 30 in a cyclic manner, which will operate the transmission and rotate fly wheel 23.

The transmission will apply a predetermined minimum load

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resisting the rotation of the platforms. It is apparent that the operator may provide more active exercise when operating the machine in a standing "jogging" position, with the feet and legs only, without being seated and with or without holding the hand grip member 5.

10 A particular predetermined exercise period will be terminated by the audible sound from the timer 8. It is also to be noted that the user may adjust the degree of exercise by maintaining the predetermined speed of rotation of the platforms within a range indicated by the speedometer assembly 7.

In order to increase the load of "jogging", a corresponding increase in the effort of exercise may be attained by moving lever 36 which will move the brake shoe into engagement with the fly wheel to apply a selected frictional load thereto.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An exercise machine comprising a means forming a combination base and frame for positioning on a substantially horizontal surface, a pair of shafts in adjacent parallel spaced relation journaled for rotation in said frame, a right crank means on corresponding ends of each of said shafts with an outward extending right crank pin, a like left crank means on the opposite corresponding ends of each of said shafts with a like outward extending left crank pin, each of said right and left crank means positioned in opposite relation with respect to the corresponding said axis of each of said shafts, a flywheel means journaled for rotation in said frame, a transmission means connecting said pair of shafts for simultaneously rotating same and both said crank means at like speed with both said left and right crank pins in like radial position and connected with said flywheel means for rotating same at a predetermined higher velocity ratio than the velocity ratio of said crank shafts, a right foot platform journaled on both the said right crank pins and a left foot platform journaled on both the said left crank pins for maintaining each said platform in parallel horizontal position when rotated whereby a person standing with the left and right feet on the left and right platforms will rotate same by an alternate left and right stepping motion, which will energize said transmission and rotate said flywheel means, which energy expended will be absorbed by the friction load of the moving elements in the machine and the inertial energy stored in the said flywheel means will carry the said platforms over the dead center positions of said platforms.

2. The construction recited in claim 1 including a speedometer means secured to said frame operatively connected to said flywheel means for indicating the velocity of rotation of said platforms with respect to said flywheel means when the latter is rotated.

3. The construction recited in claim 1 including a brake shoe means movably secured in said frame for movement from an idle position to selected degrees of frictional engagement with said flywheel means, spring means biased between said frame and said shoe means for normally holding the latter into said idle position, manually operated screw means for moving said shoe means into predetermined frictional engagement with said flywheel means against the restraining action of said spring means when manually operated.

10 4. The construction recited in claim 1 including a seat secured to the central rear portion of said base by an adjustable post for adjustably seating a person pedaling said platforms.

5. The construction recited in claim 1 including a hand rail means having a horizontal gripping portion secured to the front portion of said base of predetermined height for gripping by the hands and steadying the person operating said platforms.

6. In an exercise machine of the character described a means forming a frame adapted for mounting on a substantially horizontal surface, a pair of bicycle crank assemblies including a
20 pair of right and left crank pins in each assembly with each crank shaft thereof journaled for rotation in adjacent parallel spaced relation in said frame with said left and right said crank pins on opposite sides of said frame, a sprocket means of like predetermined diameter coaxially secured on each said crank shaft, an endless chain means engaged with both said sprocket means for simultaneously rotating said crank assemblies at like speed when rotated and with the said crank pins positioned in like radial relation, a right foot platform journaled on both of said right crank pins and a left foot platform journaled on both the said
30 left crank pins for maintaining each said platform in parallel substantially horizontal position when rotated, an intermediate shaft journaled for rotation in said frame in parallel spaced

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relation with each said crank shaft, a sprocket coaxially secured on said shaft and engaged with said chain for rotation thereby for rotating said intermediate shaft at a predetermined speed at a higher ratio than the speed of rotation than each said crank shaft, a flywheel means journaled for rotation on said frame, a transmission means connecting said intermediate shaft with said flywheel means for rotating same at a predetermined speed at a higher ratio of speed than the rotation of said intermediate shaft whereby the cyclic rotation of each of said platforms by the feet of a person will simultaneously rotate said sprockets and chain and rotate said intermediate shaft and said transmission will simultaneously rotate said flywheel means whereby the friction of said moving parts in said machine will provide a restraining load through the cyclic rotation of said platforms and whereby said flywheel means will carry said platforms over dead center positions of said platforms.



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